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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,004	01/30/2002	R. Christopher deCharms	27969-702	7144

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EXAMINER	
SHAW, SHAWNA JEANNINE	

ART UNIT	PAPER NUMBER
3737	

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/066,004	DECHARMS, R. CHRISTOPHER	
	Examiner	Art Unit	
	Shawna J. Shaw	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/30/2002, 8/21/2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *08212002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 13 and 29 are objected to because of the following informalities: In claim 13, reference to Figure 14 should be removed from the claim. It appears that claim 29 should depend from claim 28. For examination purposes, the examiner has treated misnumbered claim 31 as claim 30. Appropriate correction is required.

Claim Rejections - 35 USC § 101

2. Claims 23, 24 and 30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 23 and 30 recite a computer program. To overcome this rejection, applicant should amend the claims to read: "A computer readable medium comprising computer executable instructions for...." Claim 24 should also be updated accordingly.

Claim Interpretation

3. For examination purposes, the examiner understands "substantially real time" to refer to "a short period of time between process steps" (specification p. 34 lines 3-4), "voxel" to mean "a point or three dimensional volume from which one or more measurements are made" (specification p. 34 lines 25-27) and "instruction(s)" to denote "any instruction to [overtly] perform a physical or mental action that is communicated to a subject" (specification p. 28 lines 12-22 and p. 30 lines 9-14).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 6-12, 16 and 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Voyvodic "Real-Time fMRI Paradigm Control" of record.

Voyvodic discloses a computer assisted method and software for substantially, or nearly, real time integration of fMRI behavioral and physiologic data. In this way, poor task performance or excessive motion can be identified in time to make "corrections" (implicitly instructing the patient to repeat the task or not to move or breathe) and repeat the scan (p. 91 2nd col. 2nd paragraph). Voyvodic further displays activated voxels in a region of interest (such as the visual cortex) with respect to the entire brain where voxel sizes are approximately 3.2x3.2x3 mm and 0.94x0.94.x1.5 mm. See fig. 3 and 5.

5. Claims 1, 3-6, 12, 16-25 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Collura.

Regarding claims 1, 3-6, 12, 16-25 and 28-30, Collura teach a computer assisted method and software for communicating EEG feedback and instructions to a subject in real time based on measured/determined brain activity in a region of interest (including e.g., what next stimulus to communicate, what behavior to instruct next, etc.). See claims 1, 6 and 7.

6. Claims 1-7, 12-20, 23-26 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Toomim et al.

Regarding claims 1-7, 12-20, 23-26 and 30, Toomim et al. disclose a computer assisted method and software for communicating feedback and information (col. 6 lines 16-17 and 21-23) to a subject suffering from a mental disorder (col. 2 lines 16-21, col. 7 lines 26-35) in real time (col. 2 lines 47-50) based on measured/determined functional brain activity (see col. 2 lines 25-29 and col. 4 lines 1-14 for types of detected radiation) in a region of interest (such as within the cerebral cortex). See also claim 14.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 13-15 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Collura in view of Rosenfeld.

Regarding claims 13-15, although Collura uses EEG to monitor (and feedback to vary) the mental state of the patient, the region of interest or the condition of the subject are not discussed explicitly. Rosenfeld demonstrates a well- known EEG method (detecting signals from underlying cerebral cortex) to treat or modify disorders such as attention deficit or depression (indirectly involving release of a neuromodulatory substance). See claims 1 and 21. It

would have been obvious at the time the invention was made to a person of ordinary skill in the art to use the EEG method of Collura to train/treat a person suffering from a disorder such as attention deficit or depression as taught by Rosenfeld to more effectively bring about self-improvement and peak performance (that may otherwise be hindered by depression or attention deficit) of that individual.

8. Claims 8-11 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toomim et al. in view of Liu et al.

Regarding claims 8-11 and 27, Toomim et al. does not explicitly disclose the number of voxels or volume thereof. Liu et al. generally demonstrates that voxel sizes less than 1x1x1 cm for common imaging modalities (2, 3) are well known (col. 11 lines 28-30). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to obtain measurements from volumes as small as 0.4x0.4x1.0 cm as taught by Liu et al. in the invention as taught by Toomim et al. to obtain highly resolved data for more accurate diagnosis as is well known in the art.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory

double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 23-28 and 30 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 20-23 and 26 of copending Application No. 10/062,627. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are an obvious variation of the co-pending claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Claims 1-3, 6-11, 13-16, 23-30 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 and 6-25 of copending Application No. 10/628,875. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are an obvious variation and/or combination of the co-pending claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawna J. Shaw whose telephone number is (703) 308-2985. The examiner can normally be reached on 6:45 a.m. - 3:15 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (703) 308-3552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shawna J. Shaw
Primary Examiner
Art Unit: 3737
09/27/2004